IN THE CLAIMS

Please amend the claims as follows:

1. (Currently Amended) In a multiprocessor computer system having a plurality of processing nodes and physical communication links interconnecting the processing nodes in a predefined topology, wherein each processing node includes a processor, a router and a local memory, wherein the physical communication links connect a router in one processing node to a router in another processing node, and wherein each router consults a routing table resident within ~~the~~ its associated processing node when deciding where to route a message from one processing node to an adjacent processing node, a method of building a routing table, comprising:

a) determining all single hops for each processing node;

b) querying each adjacent node for its single hop routes;

c) determining if all nodes can be reached;

d) if all nodes cannot be reached, setting x=2;

e) querying each adjacent node for its "x" hop routes;

f) eliminating all routes to a particular node that are longer than existing routes from the node where the routing table will reside to that particular node;

g) eliminating all routes that introduce a cyclic dependency;

h) choosing a ~~best route for e node~~ preferred route to the particular node among the routes that have not been eliminated by either f or g;

i) determining if all nodes can now be reached;

j) if all nodes cannot be reached, setting x = x+1 and repeating e through j; and

k) if all nodes can be reached, building the routing table.

2. (Original) The method of claim 1, wherein querying each adjacent node for its "x" hop routes includes obtaining dependency information for each route.

3. (Currently Amended) The method of claim [[1]] 2, ~~wherein querying each adjacent node for its "x" hop routes includes obtaining dependency information for each route,~~ wherein the dependency information is stored as a bit vector.

4. (Currently Amended) The method of claim 1, wherein choosing a ~~best route for a node~~ preferred route to the particular node includes comparing routes to the particular node to a route obtained by applying a routing algorithm and selecting the route that is closest to the route obtained by applying the routing algorithm.

5. (Currently Amended) A multiprocessor computer system comprising:

a plurality of processing element nodes, each processing element node having a processor, a router and a local memory; and

physical communication links interconnecting the processing element nodes in a predefined topology, wherein the physical communication links connect a router in one processing element node to a router in another processing element node;

wherein each router includes:

a plurality of ports, wherein the ports receive and send messages; ~~and~~

a routing table associated with each port, wherein the routing table includes entries having directions for routing a message along a given route[[,]]; and

a route processor, wherein the route processor determines the directions for routing ~~are determined~~ by:

a) determining all single hops for each processing node;

b) querying each adjacent node for its single hop routes;

c) determining if all nodes can be reached;

d) if all nodes cannot be reached, setting x=2;

e) querying each adjacent node for its "x" hop routes;

f) eliminating all routes to a particular node that are longer than existing routes from the node where the routing table will reside to that particular node;

g) eliminating all routes that introduce a cyclic dependency;

h) choosing a ~~best route for e node~~ preferred route to the particular node among the routes that have not been eliminated by either f or g;

i) determining if all nodes can now be reached;

j) if all nodes cannot be reached, setting x = x+1 and repeating e through j; and

k) if all nodes can be reached, building the routing table.

6. (New) The system of claim 5, wherein querying each adjacent node for its "x" hop routes includes obtaining dependency information for each route.

7. (New) The system of claim 6, wherein the dependency information is stored as a bit vector.

8. (New) The system of claim 5, wherein choosing a preferred route to the particular node includes comparing routes to the particular node to a route obtained by applying a routing algorithm and selecting the route that is closest to the route obtained by applying the routing algorithm.

9. (New) The system of claim 5, wherein each router is capable of accessing the local memory on adjacent nodes.

10. (New) The method of claim 1, wherein querying each adjacent node includes reading hop routes from the local memory of the adjacent node.

11. (New) A device, comprising:

a plurality of ports including a first port and a second port, wherein the ports receive and send messages;

a routing table associated with each port, wherein the routing table includes entries having directions for routing a message along a given route; and

a route processor, wherein the route processor determines the directions for routing by:

a) determining all single hops for each of a plurality of processing nodes including a first node and a second node;

b) querying each adjacent node for its single hop routes;

c) determining if all nodes can be reached;

d) if all nodes cannot be reached, setting x=2;

e) querying each adjacent node for its "x" hop routes;

f) eliminating all routes to a particular node that are longer than existing routes from the node where the first routing table will reside to that particular node;

g) eliminating all routes that introduce a cyclic dependency;

h) choosing a preferred route to the particular node among the routes that have not been eliminated by either f or g;

i) determining if all nodes can now be reached;

j) if all nodes cannot be reached, setting x = x+1 and repeating e through j; and

k) if all nodes can be reached, building the first routing table.

12. (New) The device of claim 11, wherein querying each adjacent node for its "x" hop routes includes obtaining dependency information for each route.

13. (New) The device of claim 12, wherein the dependency information is stored as a bit vector.

14. (New) The device of claim 11, wherein choosing a preferred route to the particular node includes comparing routes to the particular node to a route obtained by applying a routing algorithm and selecting the route that is closest to the route obtained by applying the routing algorithm.

15. (New) The device of claim 11, wherein the routing table includes a different port routing table for each of the plurality of ports.

16. (New) In a computer having a plurality of ports and a routing table associated with each port, wherein the routing table includes entries having directions for routing a message along a given route, a computer-readable medium including instructions that, when executed by a computer, cause the computer to determine the directions for routing by:

a) determining all single hops from the computer to its adjacent processing nodes;

b) querying each adjacent processing node for its single hop routes;

c) determining if all nodes can be reached;

d) if all nodes cannot be reached, setting x=2;

e) querying each adjacent processing node for its "x" hop routes;

f) eliminating all routes to a particular node that are longer than existing routes from the node where the first routing table will reside to that particular node;

g) eliminating all routes that introduce a cyclic dependency;

h) choosing a preferred route to the particular node among the routes that have not been eliminated by either f or g;

i) determining if all nodes can now be reached;

j) if all nodes cannot be reached, setting x = x+1 and repeating e through j; and

k) if all nodes can be reached, building the routing table.

17. (New) The medium of claim 16, wherein querying each adjacent node for its "x" hop routes includes obtaining dependency information for each route.

18. (New) The medium of claim 17, wherein the dependency information is stored as a bit vector.

19. (New) The medium of claim 16, wherein choosing a preferred route to the particular node includes comparing routes to the particular node to a route obtained by applying a routing algorithm and selecting the route that is closest to the route obtained by applying the routing algorithm.

20. (New) The medium of claim 16, wherein the routing table includes a different port routing table for each of the plurality of ports..